PB89-229595

# Superfund Record of Decision (EPA Region 3): Wildcat Landfill, DE (Second Remedial Action), November 1988

(U.S.) Environmental Protection Agency, Washington, DC

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U.S. Department of Commerce
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Office of
Emergency and
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EPA/ROD/R03-89/065
November 1988

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EPA

# Superfund Record of Decision:

# Wildcat Landfill, DE

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

The Wildcat Landfill is located 2.5 miles southeast of Dover, in Kent County, Delaware. A 2.7-acre pond, formed by the landfill blocking natural drainage from upland areas, is located along the northwestern border of the site. The pond and the landfill are located along the west bank of the St. Jones River and are bordered to the north and east by the river and associated marshlands, and to the south and west by residential and commercial development. Portions of the site lie within the 100-year floodplain of the St. Jones River. The landfill was addressed in the first operable unit Record of Decision signed in June 1988. This operable unit details the selection of a remedial alternative which addresses the largely environmental concerns the landfill poses to the pond and associated biota. The landfill was operated as a State-permitted sanitary landfill between 1962 and 1973, accepting both municipal and industrial wastes. During its 11 years of operation, the facility routinely violated operating and other permits issued by the regulatory agencies. In August 1973 the facility was ordered closed by the State and the site owners were required to cover the site with soil and vegetation. EPA began investigating the site in 1982. Industrial wastes suspected to have been disposed of onsite include latex waste and paint sludges. Surface water and sediments in the pond were contaminated by inorganic constituents
(See Attached Sheet)

17. Document Analysis a. Descriptors

Record of Decision - Wildcat Landfill, DE
Second Remedial Action - Final
Contaminated Media: sediments, SW
Key Contaminants: metals (arsenic, chromium, lead)

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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EPA/ROD/R03-89/065
Wildcat Landfill, DE
Second Remedial Action - Final

16. Abstract (continued)

leaching from the landfill. The primary contaminants of concern affecting the sediments and surface water in the pond are metals including arsenic, chromium and lead.

The selected remedial action for this site includes: draining, filling, and revegetating the pond area consistent with the landfill cover selected in the previous ROD; constructing a new pond elsewhere on the site; implementing institutional controls for land use restrictions; and ground water monitoring upgradient of the new pond. A cost analysis was not performed because the remedy will be implemented as part of the site remedy by the PRP Group.

Declaration for the Record of Decision

Site Name and Location

Wildcat Landfill Pond
Second Operable Unit
Kent County, Delaware

Statement of Basis

This decision is based upon the administrative record for the Wildcat Landfill site including the pond adjacent to the landfill. The attached index identifies the items which comprise the administrative record.

Statement of Purpose

This decision document presents the selected remedial action for the Wildcat Landfill pond (second operable unit) developed in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Contingency Plan (40 CFR 300).

The State of Delaware concurs with the selected remedy.

Description of the Selected Remedy

This operable unit consists of the pond located adjacent to the landfill and it is the second of two operable units for the site. The first operable unit Record of Decision (ROD) was issued on June 29, 1988. It addressed the source of contamination by eliminating the existing direct contact risks posed by the landfill contents. The first ROD also addressed the leachate seeps adjacent to the pond as part of the selected remedy. The remedy selection for the pond is based upon the remedy selected for the landfill and upon an additional study by the U.S. Fish and Wildlife Service.

The major components of the selected pond remedy include:

-- Draining and covering the pond with soil. This work will be done concurrently with covering the leachate seeps as detailed in the June 29, 1988, ROD;

-- Testing and discharge of pond water to the St. Jones River;

-- Slope and vegetative stabilization of the pond fill surface;

-- Development of a new pond and associated habitat in accordance with the design specifications and success standards developed by the appropriate State and Federal natural resource agency representatives. This replacement pond and habitat would be designed to have habitat values equal to or greater than the pond that is to be covered;

-- Construction of a monitoring well upgradient of the new pond consistent with the monitor wells required in the June 29, 1988, ROD;

-- Monitoring of the ground water at the newly constructed well. Detection of contaminants in this well would trigger an assessment of the situation to determine if any actions are necessary to protect the replacement pond and habitat; and

-- Development of administrative restrictions at and adjacent to the newly created pond and at the area of the filled pond.

DECLARATION

The selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate to the remedial action, and is consistent with the remedy selected for the landfill. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. But, because treatment of the pond sediments was not found to be practicable, the remedy for the pond does not satisfy the statutory preference for treatment as a principal element of the remedy. However, the remedy is an appropriate solution to the problems found in the pond. The location of the pond directly adjacent to the landfill requires that the selected remedy be compatible with the remedy selected for landfill. The agencies will reassess the range of alternatives and perform a cost-effective analysis if the selected remedy is not implemented by the PRP Group.

Because this remedy will be contingent upon the site remedy which resulted in hazardous substances remaining on-site above health-based levels, a review will be conducted within five years after commencement of remedial action to ensure that the remedy continues to provide adequate protection of human health and the environment.

11/30/88
DATE

Phillip G. Retallick
Director
Division of Air and Waste Management
Department of Natural Resources and
Environmental Control
State of Delaware

11/28/88
DATE

James M. Seif
Regional Administrator
Environmental Protection Agency
Region III

# RECORD OF DECISION

# ROD DECISION SUMMARY

## SUMMARY OF REMEDIAL ALTERNATIVE SELECTION

## WILDCAT LANDFILL POND

## SECOND OPERABLE UNIT

## KENT COUNTY, DELAWARE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
PHILADELPHIA, PA

and

DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL
DOVER, DE

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# SUMMARY OF REMEDIAL ALTERNATIVE SELECTION
## Wildcat Landfill Pond
## Second Operable Unit
## Kent County, Delaware

## I. Introduction

This Record of Decision (ROD) addresses the second of two operable units for the Wildcat Landfill and associated environs. The landfill was previously addressed in the first operable unit Record of Decision signed in June 1988. This second operable unit consists of an approximately 2.7 acre pond located directly adjacent to the landfill along its northwestern border. This ROD details the selection of a remedial alternative which addresses the largely environmental concerns posed on the pond by the landfill. The prior remedial investigation (RI) and feasibility study (FS) are included in this description of the remedial selection process as most of the study of the pond was done in conjunction with the original RI/FS. A supplemental study by the U. S. Fish and Wildlife Service (USFWS) on painted turtles in the pond is also used in selection of an appropriate alternative. The Delaware Department of Natural Resources and Environmental Control and the Environmental Protection Agency have agreed that a separate feasibility study is not warranted because the development and analysis of the alternatives is being performed at this time by the agencies and is included in this ROD. Also, based on the USFWS study and the existing RI and FS, adequate information is available for selection of a remedy for the pond.

A limited number of alternatives were evaluated by the agencies because a Potentially Responsible Party (PRP) Group has proposed implementing the remedy previously selected for the landfill simultaneous with the remedy for the environmental problems posed at the pond.

The alternatives have been evaluated using the following criteria from the Superfund Amendments and Reauthorization Act (SARA) Section 121: protection of human health and the environment, compliance with other environmental requirements, implementability, short-term effectiveness, long-term effectiveness and permanence, reduction in toxicity, mobility and volume, and community acceptance. Cost effectiveness was not considered in this evaluation since the PRP Group has agreed to perform the pond remedy in conjunction with the remedial activities on the landfill. However, if the PRP Group does not perform the pond remedy, EPA and DNREC would perform a cost-effective determination on a developed range of alternatives prior to selection of a remedy.

The public was given an opportunity to comment upon the Proposed Plan and the Administrative Record (Appendix A for index) which included the RI/FS, first operable unit ROD, and the USFWS Report (November 1988). The comments and concerns made by the public are considered in the alternative evaluation and are specifically addressed in the attached Responsiveness Summary (Appendix B).

This Record of Decision documents the selection of the final remedy by DNREC and EPA and is based upon the contents of the Administrative Record.

## II. Site Location and Description

The Wildcat Landfill pond is approximately 2.7 acres in area located along the northwestern border of the Wildcat Landfill site in Kent County, Delaware 2 1/2 miles southeast of Dover (See Figure 1). The pond and the landfill are located along the west bank of the St. Jones River and are bordered to the north and east by the river and associated marshlands, and to the south and west by residential and commercial establishments (See Figure 2). The pond was created as a result of the landfill blocking natural drainage from upland areas to the west of the site.

## III. Pond and Site History

The landfill was operated as a permitted sanitary landfill between 1962 and 1973, accepting both municipal and industrial wastes. Liquid and solid wastes were reportedly mixed together, compacted, and covered; drum wastes were reportedly emptied on-site and the empty drums recycled. Industrial wastes suspected to have been disposed include latex waste and paint sludges; however, there are no known records of the actual quantity of wastes which were disposed in the landfill.

The facility was permitted as a solid waste landfill by the Delaware State Board of Health in 1962. The site was later permitted by the Delaware Water and Air Resources Commission (WARC) and then by DNREC. However, during its eleven years of operation, the facility routinely violated operating and other permits issued by the regulatory agencies. In August of 1973 the facility was ordered closed by DNREC and the site owners required to cover the site with soil and vegetation. There was some effort by the owners to provide soil cover and vegetation. The entire regulatory history is discussed in the EPA Remedial Action Master Plan (RAMP) which is contained in the Administrative Record.

The site was investigated by the EPA in June 1982 for possible inclusion on the National Priorities List (NPL) of hazardous waste sites. The site was subsequently listed in December 1983 and the RAMP was published that same month. The Delaware DNREC requested and the EPA agreed to allow the state to perform a remedial investigation and feasibility study. DNREC began the remedial investigation in December 1985 and completed it in May 1988. DNREC and EPA issued the Record of Decision for the landfill (first operable unit) on June 29, 1988. The Final Feasibility Study report, which detailed the selected alternative for the landfill, was released in July 1988.

The selected remedy, detailed in the June 1988 ROD, included the following actions:

(1) Institutional restrictions on all water well installations on the site;
(2) Institutional restrictions on all shallow aquifer water well installations in areas adjacent to the site which have been identified as at some potential risk;
(3) Grading, soil cover, and revegetation of areas on-site where direct contact risks have been identified. This will be done in accordance with the Delaware Solid Waste Disposal Regulations, August 1974;

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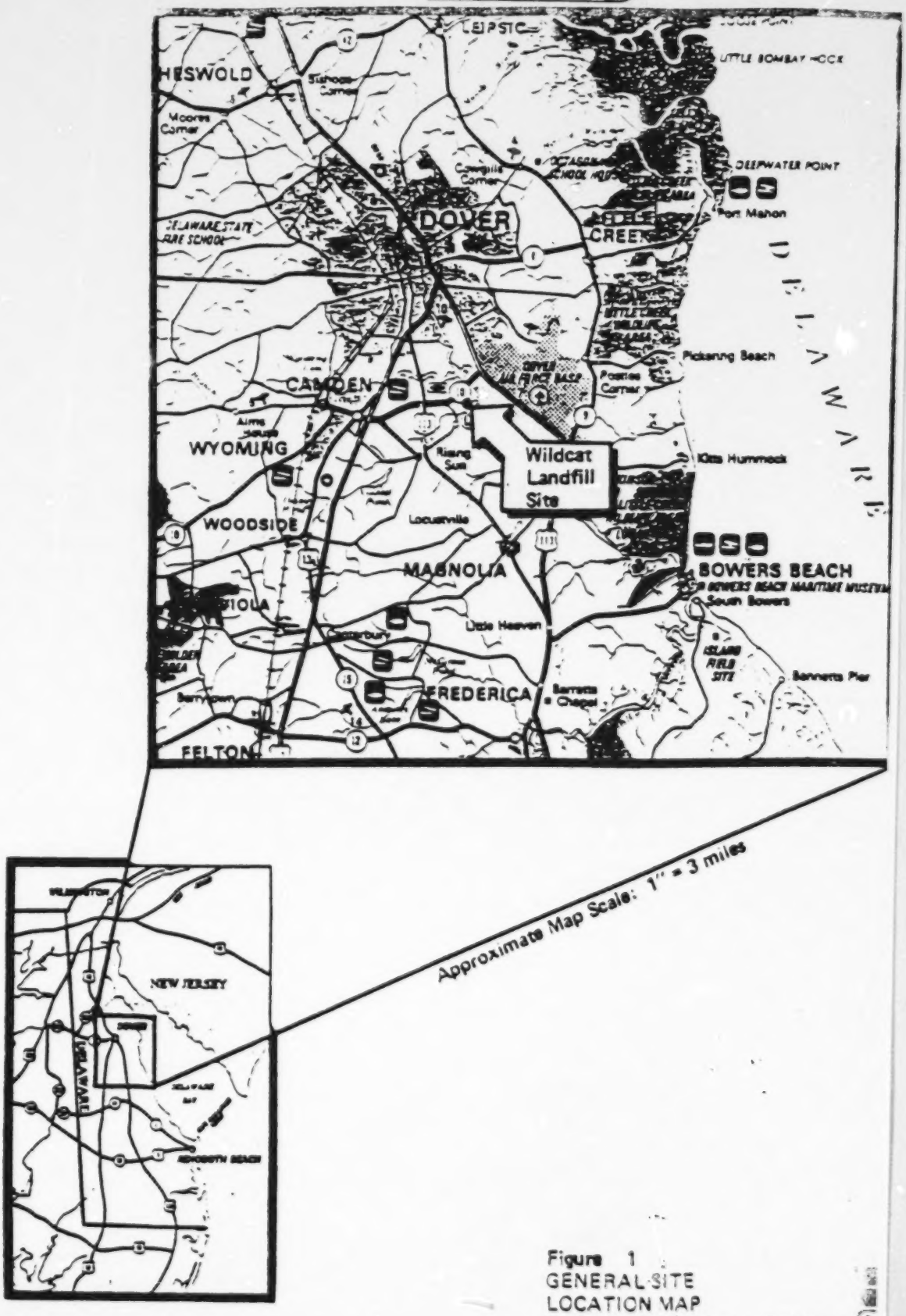


Figure 1
GENERAL SITE
LOCATION MAP
Wildcat Landfill, Dover, Delaware

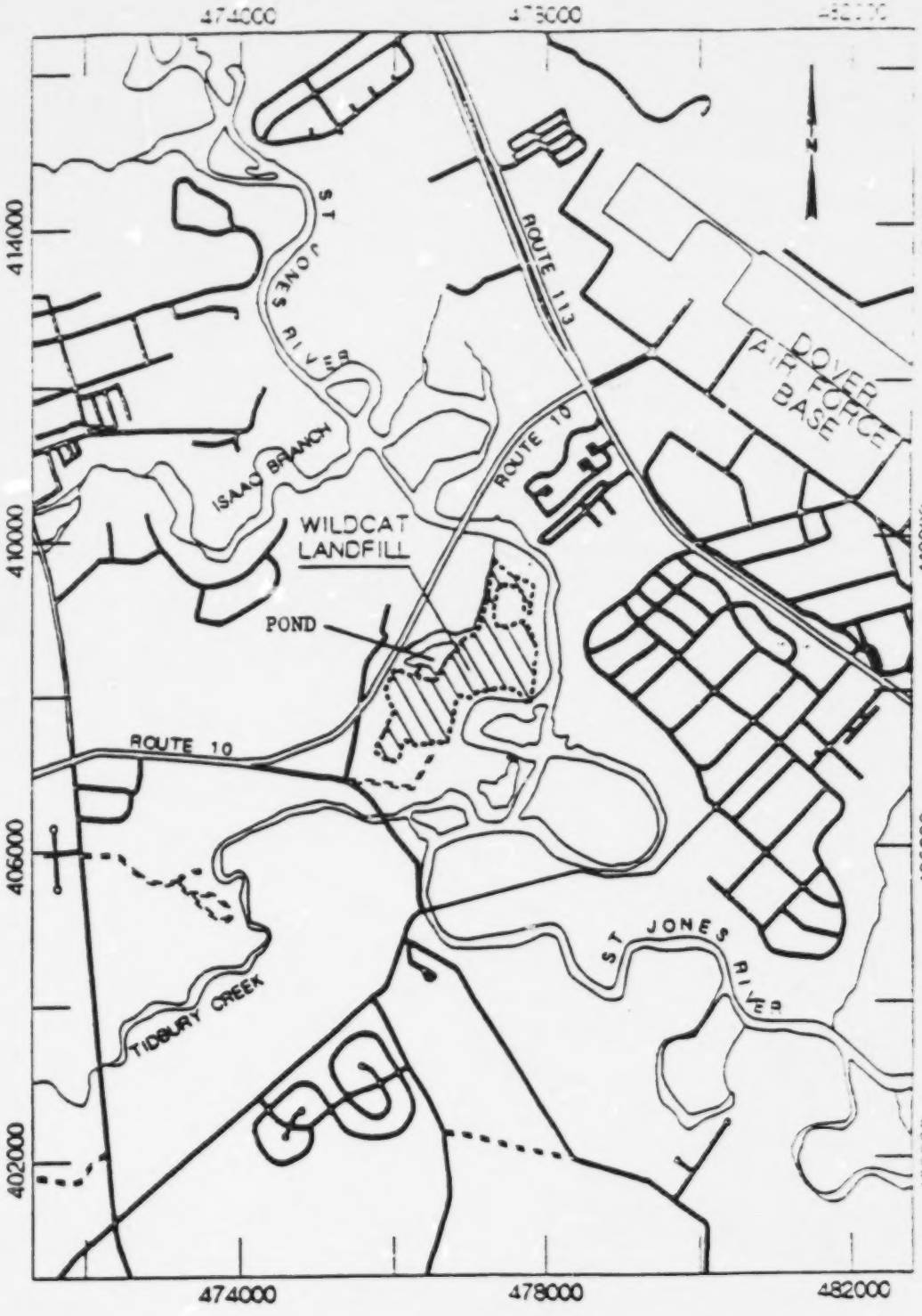


**Figure 2**

SITE LOCATION MAP

Wildcat Landfill, Dover, Delaware

(4) Removal and off-site disposal of drums containing wastes and drum contents either by landfilling (if not hazardous) or incineration at a permitted incinerator (if hazardous);
(5) Replacement of two domestic wells adjacent to the site which have been identified as being potentially at some risk from the site;
(6) Institutional restrictions on commercial and residential building development on the site;
(7) Installation of monitoring wells adjacent to Tidbury Creek to monitor the quality of ground water discharges; and
(8) Ground water monitoring to ensure the effectiveness of the remedial action.

EPA and DNREC entered into negotiations with a PRP Group following signature of the ROD for the first operable unit. In order to fully address the remedial action, the PRP Group chose to negotiate remedial action for the pond as well as the remedial action for the landfill and implementation of both operable units will be embodied into a single consent decree.

## IV. Current Pond and Site Status

The RI Report described the geology, hydrogeology, surface water and sediment character of the pond, and both the biological assessment and the wetlands assessment of the landfill, the pond, and the adjacent environs. The RI was continued to determine if there were any effects on wildlife in the area including the turtles living in the pond or on the migratory birds feeding in the pond. Namely, whether the contaminants in the pond water and sediments were being bioaccumulated within the food chain. In their November 1988 report, the USFWS completed a study of the effects of elevated lead levels in painted turtles found in the pond.

### A. Geology, Hydrogeology, and Surface Hydrology

The general geology and hydrogeology of the entire study area are detailed in the RI report but a more specific description of the area of the pond is discussed here. The pond is directly underlain by meander channel organic silts with some clay, wood fragments, and root fibers. These sediments range from approximately 15 feet in the southeastern border to 0 feet along the northern and western edge of the pond. These sediments are underlain by sands of the Columbia Formation or reworked river sediments within the meander channel of the St. Jones River and are estimated at from 20 to 30 feet thick.

As stated previously, the pond receives relatively little direct run-off. Most of the surface water in the pond comes from groundwater discharge (both from the landfill and from adjacent upland areas), seeps, and from direct precipitation into the pond. Surface run-off from the upland areas to the north and west is intercepted by a drainageway located to the north and west of the pond. Surface run-off from the landfill is probably minimal except for very strong rainfall events because the surface of the landfill is very sandy with a relatively shallow slope (approximately 3%) in the area of the pond. Consequently, discharge from the landfill occurs largely from leachate seeps just above the pond surface and from discharge through the wetland sediments beneath the pond into the surface of the pond.

The elevation of the pond is approximately 3 feet above mean sea level (MSL) although the level in the pond fluctuates both seasonally and with rainfall events. The maximum surface area of the pond is approximately 2.7 acres with the surface area reduced by two-thirds during the late summer. There appears to be no direct surface water connection between the pond and the drainageway except during exceptionally high water events. This is further evidenced by the chemical data available for the drainageway as compared to the pond.

B. Chemical Evaluation

Surface water and sediments in the pond were contaminated by inorganic constituents leaching from the landfill. Organic contaminants, while present in the leachate seep along the edge of the pond, were not found in the pond. Water in both the seep and the pond had relatively high concentrations of aluminum, arsenic, barium, chromium, iron, lead, manganese, vanadium, and zinc. Of these, barium, lead, and zinc were found to be elevated in either painted turtles or mummichogs. Nickel was also found to be elevated in the painted turtles but not generally elevated in the pond. Iron was found to be particularly high in the seeps adjacent to the pond although the physiological effects of high iron were not considered. The general comparison of inorganic levels for the seep and the pond water are found in the Table 1.

C. Biological Assessment and Wetlands Delineation

Four general habitats in the area of the pond and it's associated wet areas are defined in the RI report: herbaceous, Phragmites, woodland, and open water. Thirty-four plant species, two fish species, three turtle species, three frog species, and numerous bird species were documented either in or near the pond. The total wetland loss (ie. wetlands that existed prior to the landfilling) in the vicinity of the pond is 2.7 acres which now constitutes the open waters of the pond. Although certain rare plants have been documented on the site, none were identified in the area of the pond and none will be impacted by implementation of the pond remedy.

The bioaccumulation studies in the pond indicated elevated levels of barium, lead, and zinc in mummichog fishes (Fundulus heteroclitus) and elevated levels of barium, lead, and nickel in eastern painted turtles (Chrysemys picta). The USFWS supplemental report (November 1988) indicated suppressed levels of delta-aminolevulinic acid dehydratase (ALAD), an enzyme which, when lowered, may indicate physiological effects of lead. In addition, a histopathological study of the mummichogs in the RI indicated elevated incidence of lesions in the Wildcat pond population indicating either effects from the elevated levels of lead or general environmental stress' or both.

Acute toxicity tests indicated moderate toxicity in the southwestern corner of the pond in a surface water pool somewhat separated from the main area of the pond. Other samples both from the pond and the drainageway did not indicate any toxicity. The results of these tests are contained in the Administrative Record.

COMPARISON OF WILDCAT WATER SAMPLES TO EPA'S FRESHWATER CRITERIA[a]

| Contaminant | Seep #1[b] | Pond[c] | Chronic[d] | Acute[e] |
|---|---|---|---|---|
| Cd | 15 | 5.8 | 1.1 | 3.9 |
| Cu | 22 | 6 | 2 | 18 |
| Fe | 97,300 | 61,200 | -- | 1,000 |
| Pb | 46 | -- | 3.2 | 82 |
| V | 19 | 26 | 7-10[4] | -- |
| ZN | 2,170 | 71 | 110 | 120 |

[a] All concentrations in ug/l (ppb).
[b] Sample taken at southwest corner of pond.
[c] Maximum observed concentration.
[d] Criteria calculated with 100 mg/l of hardness.
[e] Unpublished EPA advisory value for protection of freshwater life

WDR347/023

Table 1. Inorganics in Pond Area

V. Scope and Role of Pond Operable Unit

The pond is the second of two operable units associated with the Wildcat Landfill site. The first operable unit addressed the landfill contents, surface features, and groundwater concerns. The second operable unit addresses the pond that is being impacted directly by the landfill. These impacts are environmental rather than human health risks. The remedies considered for the pond will be selected to assure that they are consistent and compatible with the landfill remedy such as the selective soil covering for the leachate seeps located at the boundary of the landfill and the pond.

Since the remedy selected for landfill will not include the removal or treatment of the landfill contents, any assessment of the potential future impacts of the landfill into the pond and it's associated biological community will remain somewhat uncertain.

VI. Remedial Action Objectives

The remedial action objectives for the pond were developed in response to the affects of inorganic contaminants emanating from the landfill on biota found in the pond and the possible effects on migratory birds feeding at the pond. The major contamination in the area of the pond is from leachate seeps which flow into the pond although this human exposure risk was addressed in the initial ROD. The impact of the landfill contaminants on mummichog fishes and turtles is not considered a human health risk since neither would be consumed by humans. This second operable unit ROD addresses these environmental concerns. The extended investigation by the USFWS documented physiological effects in the turtles (reduced ALAD production) possibly as a result of elevated lead levels.

The remedial action objectives for the pond are:

1. Minimize or eliminate the impact of contaminants upon biota in the pond;
2. Stabilize the area of the pond to minimize or eliminate the exposure of biological organisms to contaminants from the landfill.

VII. Description of Alternatives

The environmental concerns found at the pond, while an environmental concern, do not pose any human health risk. Consequently, the alternatives available for consideration include the "no action" alternative and "action" alternative. In the case of the action alternative, the 'worst-case' scenario was considered. The feasibility study for the first operable unit evaluated a range of alternatives including "no action" and the selected alternative. Because of the time constraints imposed on completing the PRP negotiations, a feasibility study specific to the pond was not completed. However, information in the existing feasibility study is considered adequate at this time to evaluate the two alternatives considered for the pond.

Alternative 1: No Action

The "no action" alternative requires no remedial action; however, the existing remedy for the site would remain unaffected and would include covering, stabilization, and planting the areas of the leachate seeps located at the edge of the pond. The direct contact risks identified in the initial remedial investigation would be remedied since the leachate flow into the pond would be eliminated. However, the pond and its biological community would remain intact but the potential effects of further bioaccumulation in biota would remain. Applicable or relevant and appropriate federal or state requirements may not be met by the existing conditions since Federal Water Quality Criteria may be exceeded and future releases or exposure would remain. However, as stated previously, the landfill remedy will largely eliminate this possibility.

Alternative 2: Draining, Filling of Existing Pond and Creation of a New Pond

This alternative would require that the pond be drained, filled, and vegetated. The wetlands adjacent to the pond would not be covered except in the area of leachate seeps as required for the landfill remedy. The fill material would be capable of supporting plant growth. The area will be graded with the final elevation to approximately 3 to 4 feet above MSL or the existing high water level to allow for desirable wetland plant growth. Further, the newly filled area would be stabilized so as not to be a hazard. The minimum two-foot cover requirements for the landfill and for the leachate seeps would not be altered by this alternative. Rather, the cover for the pond would be an extension of the landfill cover.

A monitor well would be constructed upgradient of the newly created pond to monitor the groundwater in the area of the new pond. Monitoring would be done in conjunction with the monitoring requirements of the previously selected site remedy.

A second pond of equal or greater surface area and with suitable surrounding wetlands would be created elsewhere on the property in an area unaffected by landfill contaminants. A plant community would be established similar to that documented in the area of the existing pond. The habitat of the new pond and associated wetlands would be maintained during the course of site maintenance.

Institutional restrictions will be pursued by the State to assure that the new pond and its associated environs are not disturbed. Also, institutional controls will be put in place to prevent development on the filled area of the existing pond.

## VIII. Comparative Analysis of Alternatives

The initial feasibility study details the analysis of alternatives considered for the landfill. The initial feasibility study is considered adequate to evaluate the alternatives considered for the pond. This comparative analysis will be based upon eight of the nine criteria developed by EPA as the factors on which to base Superfund site decisions. They are as follows:

- short-term effectiveness;
- long-term effectiveness and permanence;
- reduction in toxicity, mobility, and volume;
- implementability;
- compliance with ARARs;
- overall protectiveness of human health and the environment; and
- community acceptance; and
- state acceptance.

Cost effectiveness is also a criteria developed by EPA for the analysis of alternatives. However, since the action alternative will be an extension of the selected site remedy as part of the PRP Group implementation of the remedy, a detailed cost analysis was not performed and will not be considered here.

The short-term effectiveness of the alternatives takes into account the time until action is complete, protection of the community during the remedial action, protection of workers during the remedial action, and environmental impacts.

The "no action" alternative for the pond would take no time to complete, would not require protection of the community or workers, and would cause no additional environmental impacts although the existing environmental conditions at the pond would remain as they are.

The draining and filling of the pond and creation of the new pond would require time for stabilization by a plant cover to assure erosion control. There would be increased dust levels during the construction phase both at the existing pond and at the newly created pond. However, this would be restricted to the time of actual construction activities. Neither the existing pond or the new pond are on the landfill; therefore, any activity would not involve direct contact with deposited material. The draining and filling of the existing pond would change the open water habitat to a wetland habitat resulting in a net wetlands increase of 2.7 acres. Consequently, the biological community relying on the open water areas would be eliminated. The wetland areas adjacent to the pond to be filled would not be covered except in the immediate area of the leachate seeps. The creation of the new pond elsewhere on the property would be completed concurrent with the remedy for both the landfill and the pond. However, there will be an extended time following creation of the pond during which the biological community will be becoming established.

The draining of the pond will be done over a very short period of time and is expected to have no impact on the St. Jones River. The water quality of the pond will be evaluated prior to draining to assure that no detrimental effects will occur.

The long-term effectiveness and permanence considers the magnitude of residual risk, the adequacy of controls, and the reliability of controls.

The "no action" alternative would not address the environmental risks of contaminant bioaccumulation posed to the pond biota. However, these risks are dependent upon the future effects of the elimination the discharge of leachate seepage into the pond as required in the landfill remedy. Covering the leachate seeps will reduce the future risks to the pond environment.

The draining and filling of the existing pond would reduce the residual risks posed to the biological community in the open water of the pond as this area will be replaced by wetland habitat. (The potential human health direct contact risks associated with the leachate seeps has already been addressed in the remedy selected for the landfill.) The cover and slope stabilization and planting requirements would provide long-term reliability but would require initial maintenance to assure that the slope is stable and subsidence is controlled.

The reduction in toxicity, mobility, and volume evaluation addresses the statutory preference for selecting a remedial alternative that employs treatment. In regards to the pond, this criteria applies to the surface water and sediments.

The "no action" alternative would not meet this statutory preference.

The draining and filling of the pond would reduce the mobility of the contaminants in the biological community by eliminating the surface water route of exposure. There would be a reduction in toxicity since the direct surface water route would be eliminated. However, the volume would not be reduced. The remedy for the pond is not particularly relevant to this criteria since the waste materials are not being addressed in this remedial action.

The implementability analysis refers to the technical and administrative feasibility of implementing the alternatives.

The "no action" alternative would require no action and would be easily implemented.

The draining and filling of the pond would require no special equipment and would be accomplished by the soil cover activities already required for the landfill remedy and would, thus, be easily implemented. The sediments underlying the pond are prior existing wetland sediments ranging from approximately 15 feet to 0 feet. The stability requirement for this remedy would require an as yet undefined amount of fill material. However, this would not affect the general equipment requirements or implementability of the remedy.

The ARAR compliance evaluation of the alternatives includes a review of the state and federal applicable or relevant and appropriate chemical-specific, action-specific, and location-specific requirements, and other concerns identified as to-be-considered (TBC). The TBCs do not meet the regulatory prerequisites of ARARs. The ARARs were evaluated for the site remedy in Technical Memorandum Number 1 which is found in the Administrative Record. The potential list of requirements for the pond remedy is the same as for the site remedy and the analysis of these requirements is taken from the Feasibility Study report for the site. No other federal or state requirements have been identified although additional TBCs have been identified for the creation of the new replacement pond. The major ARARs and TBCs for the pond remedy include the action-specific requirements of the Delaware River Basin Commission (DRBC) regulations (May 28, 1986), the federal Executive Orders regarding wetlands and floodplains, the Clean Water Act (CWA) Section 404, Delaware's Criteria and Guidelines for Creating Waterfowl Impoundments in Regulated Delaware

Wetlands, effluent limitations of the National Pollution and Discharge Elimination System (NPDES) pursuant to Section 402 of the CWA, and the Delaware Regulations Governing the Construction of Water Wells (January 20, 1987). Permits are not required for any of the proposed remedial action activities except for the construction of the monitor wells.

The Delaware River Basin Commission regulations apply to the filling of greater than 25 acres of wetlands or where there is no other Federal or State reviewing agency. Because the pond is 2.7 acres and there are other reviewing state and federal agencies, the DRBC requirements are not considered as ARARs. In the case of the filling of the existing pond, Section 404 of the CWA requires that the U.S. Army Corps of Engineers issue a permit for such activities. Since the activity is associated directly with site remedy, a permit from the U.S. Army Corps of Engineers is not required under Section 121(e) of SARA, however, the substantive requirements of the Corp's regulations will be followed. The creation of the replacement pond will not require any permits since the area of the new pond is in a previously disturbed upland area, unaffected by the landfill. These ARARs do not apply to the "no action" alternative.

Executive Order 11988 (Protection of Floodplains) requires that action be taken to avoid adverse effects, minimize potential harm, and restore and preserve natural and beneficial values. This requirement is applicable to the remedial alternative for the draining and filling of the pond and is in fact trying to restore the natural and beneficial values of the existing pond at the newly created pond. The "no action" alternative does not clearly comply with this ARAR. Executive Order 11990 (Protection of Wetlands) requires that action be taken to minimize the destruction, loss, or degradation of wetlands. Since the open water area of the pond will be altered to wetlands and since the new pond will be of at least equal surface area and habitat value, these requirements will be complied with. The "no action" alternative also complies with this ARAR by not taking any action in the wetland areas.

The Delaware Regulations Governing the Construction of Water Wells (January 20, 1987) requires a permit for all water wells within the state. A permit would be required in the draining and filling alternative to monitor ground water discharge into the pond. Since these wells are off the site and not within the study area of the pond, permits are required. These regulations do not apply to the "no action" alternative because a monitor well would not be required.

The Guidelines for Creating Waterfowl Impoundments in Regulated Delaware Wetlands is a state TBC which apply to the creation of the new pond. This TBC would not apply to the "no action" alternative.

The NPDES requirements of CWA Section 402 are not applicable to the draining of the pond as the draining will occur over a relatively short time period and will be done in an existing drainageway. Also, prior to discharge, the pond waters will be analyzed to assure that the Federal Water Quality Criteria are not exceeded in the St. Jones River. Since the pond would not be drained in the "no action" alternative, this ARAR would not apply.

The <u>overall protection of human health and the environment</u> criteria is a general summary of the protectiveness of the alternatives. The previously selected remedy already has considered the protection of human health and the

environment in relation to the landfill and the leachate seeps. The pond remedy is to address the environmental concerns associated with the pond's biological community.

The "no action" alternative would adequately protect human health but would not address the existing or potential environmental concerns for biota in the pond. However, the covering of the leachate seeps entering the pond will help to maintain or reduce the status quo of contaminants in the pond. Thus, it will provide some level of protection for the biological community in the pond.

The draining and filling of the pond would be more protective of the environment than the "no action" alternative. By reducing the biota's contact with the pond surface water and surface sediments, the quality of the environment is improved. Also, by the construction of a replacement pond elsewhere on the property removed from any likely effects of the landfill, the migratory birds should be lured away from the existing pond and to the newly created pond.

The community acceptance criterion indicates those features of the alternatives the community supports, those for which they have expressed reservations, and those they strongly oppose. The remedy selected for the landfill showed some opposition at the public meeting toward not addressing the pond as part of the site remedy. Since this record of decision will be addressing the pond and would be implemented concurrent with the site remedy, those prior concerns are addressed. This evaluation is based upon comments submitted to either the state or EPA as well as those made at the public meeting.

The state acceptance criterion is already met as the State of Delaware is the lead agency for the site and is a co-selector of the remedy along with EPA.

## IX. Community Relations

Community relations have been ongoing throughout the remedial investigation and through completion of the first Record of Decision for the site. Local officials were briefed upon completion of the proposed plan for the first operable unit. The same officials were contacted by phone upon completion of the second operable unit proposed plan but declined a briefing. A public meeting was held on November 15, 1988, to discuss the proposed plan for the second operable unit and obtain public comment. The comment period extended from November 4 - 28, 1988. The administrative record for the site and the pond was available for public inspection both at the Dover Public Library, located near the site, and at the EPA Region III office.

DNREC and EPA have responded to all public comments in the attached Responsiveness Summary (Appendix B).

## X. Documentation of Significant Changes

No significant changes to the preferred alternative presented in the proposed plan have occurred.

XI. Selected Remedial Alternative

Both CERCLA and SARA require the selection of a remedy which (1) provides protection of human health and the environment, (2) is cost-effective, (3) utilizes permanent solutions and alternate treatment technologies or resource recovery options to the maximum extent practicable, and (4) that attains federal and state ARARs unless otherwise waived. In addition, treatment of the principal threat at the site to reduce the mobility, toxicity, and volume of the hazardous substance is preferred. However, as described previously, the PRP Group's offer to implement the remedy for the pond in conjunction with the site remedy has enabled the agencies to defer a cost-effectiveness analysis at this time. However, such an analysis would be done prior to selection of the remedy if the selected remedy for the pond is not implemented as part of the Group's offer. The remedy selected for the Wildcat Landfill pond is discussed below.

A. Description of the Selected Alternative and Performance Goals

The remedy selected for the pond by DNREC and EPA is the draining and filling of the existing 2.7 acre pond and the construction of a new pond elsewhere on the property unaffected by the landfill (See Figure 3 ). The selected remedy will be consistent with the remedy selected for the landfill (June 1988, ROD). Both remedies would be implemented concurrently.

The general features of the preferred alternative are as follows:

1. The pond will be drained by way of an existing drainageway along the northwestern side of the landfill. Prior to drainage, the waters would be analyzed to assure that Federal Water Quality Criteria are met. The waters would drain into the St. Jones River to the north of the site;

2. The entire 2.7 acres of surface water area of the pond will be filled to an elevation of between 3 and 4 feet MSL. The intent of this requirement is to provide for a stable slope and vegetative cover while allowing wetland type vegetation to grow in the area. The existing wetland areas to the southwest of the pond would not be filled. Further, the uppermost area of the fill material within this area would be capable of supporting vegetation.

3. The filling of the pond will be conducted in accordance with the cover requirements of the leachate seeps. This will prevent duplication of effort for the landfill and pond remedies and will assure that the seep areas are properly remedied.

4. A new pond will be constructed elsewhere on the site property in an area unaffected by the landfill. The pond will be designed to provide at least 2.7 acres of surface water area and provide at least equivalent habitat value as that being lost. This will include the appropriate water depths, plant types, transition zone areas, and other features.

5. A monitor well will be constructed upgradient of the pond and will be of the same design as the monitor wells required in the previous remedy. The purpose of the monitor well is to assure that the pond is unaffected by the landfill and that the appropriate Federal Water Quality Criteria are met at the ground water discharge location.

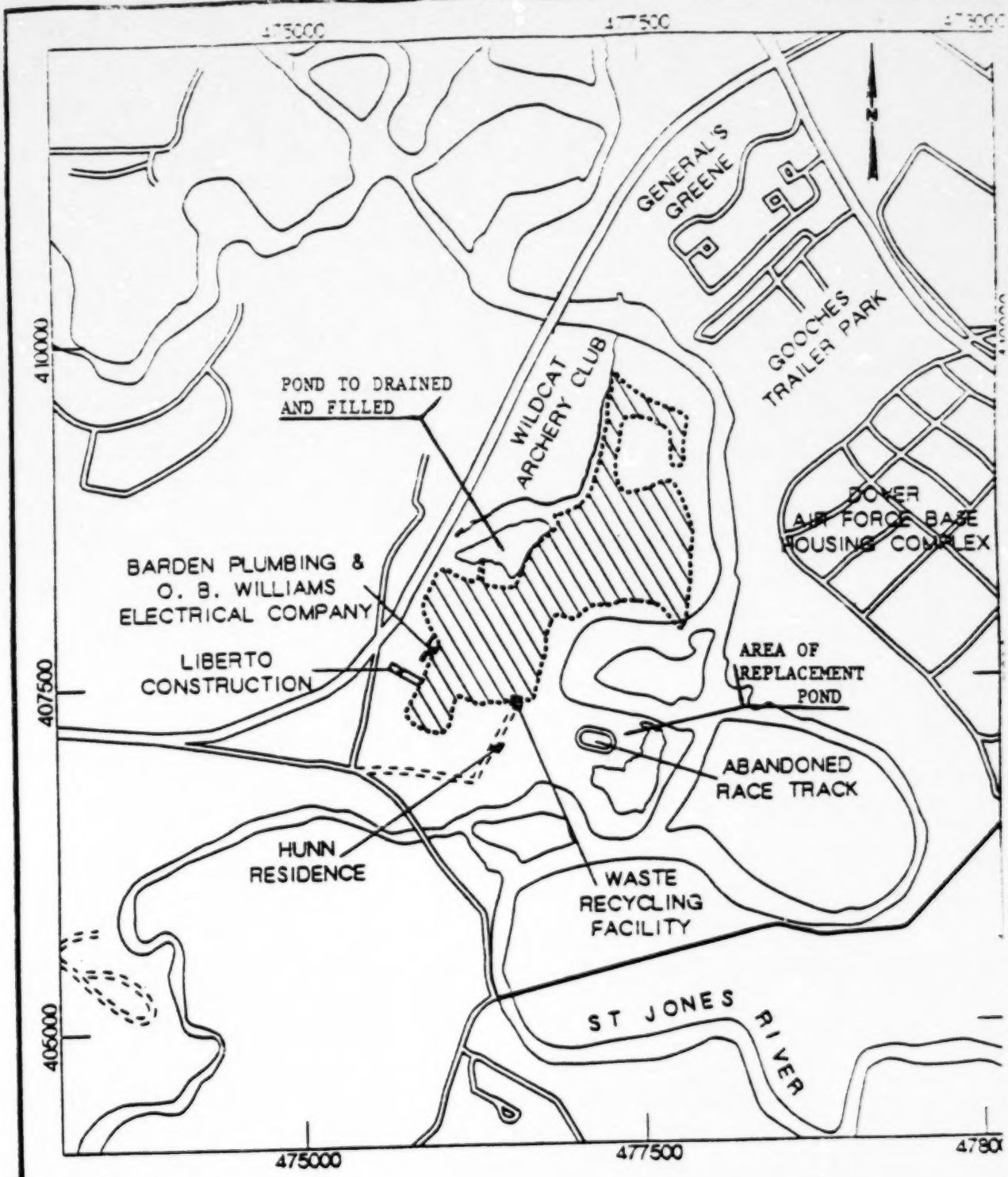


**Figure 3**

General Features of Gen
Remedial Alternative

Wildcat Landfill
Dover, Delaware

6. Sampling of the new pond and the monitor well will be done in accordance with the landfill remedy monitoring requirements.

7. Restrictions will be made to assure that the integrity of the new pond is maintained and that there will not be development at or near the pond that would lower the established habitat value. Institutional controls will also be put in place to prevent development on the area of the filled pond.

The selected alternative mitigates the existing environmental problems posed at the existing pond and allows for the creation of an approximately equivalent resource nearby. Further, the remedy, which is consistent with the site remedy, has been proposed as part of the overall landfill and pond remedy by the PRP Group and is adequately protective of human health and the environment. The statutory preference for treatment of the principal threat at the site will not be met by this remedy with treatment of the surface water as the possible exception. It is felt that dredging or treatment of the pond sediments would not be practical because of projected difficulties encountered in working in the marshy areas compared to the exclusively environmental risks identified. Also, since the landfill contents will not be removed nor will there be any treatment of the groundwater, there is nothing to preclude the future movement of contaminated surface water or groundwater into the area of the pond. It should be noted that closure of the existing pond area is consistent with the closure remedy previously selected in the June 29, 1988 ROD. The draining and filling of the existing pond reduces the existing and potential environmental concerns posed at the pond in that the direct contact from the leachate seeps and the sediments is mitigated by the filling requirement. Further, the biota of concern will no longer be at that area and a new pond will be created elsewhere of equal or greater value.

The monitoring requirements for the pond are included only as a safeguard measure. Although the pond is downgradient of the southwestern area of the landfill where there is documented movement of low levels of certain contaminants, the documented levels from wells directly adjacent to the landfill are below MCL levels and are not likely to affect the pond. Further, sampling within the area of the new pond showed no evidence of contamination. However, to maintain protectiveness of the remedy, we have proposed to install this monitoring well.

B. Statutory Determinations

The purpose of this section is to describe the ability of the selected remedy to be consistent with the statutory requirements of Section 121 of CERCLA and will describe the adequacy of the remedy to be protective of human health and the environment, attain ARARs, utilize permanent solutions and alternative technologies or resource recover technologies to the maximum extent practicable, and address the preference for reduction in toxicity, mobility and volume.

Protection of Human Health and the Environment

The remedy selected for the pond did not need to address the human health concerns because no human health concerns were identified at the pond. The selected remedy for the pond is adequately protective of the environmental concerns, namely, bioaccumulation of certain inorganic contaminants that were identified. The open water habitat of the pond would be replaced by wetland

habitat thereby removing the biota of concern from the sediments of concern. Further, the filling of the pond would cover the sediments of concern creating a wetland scenario as exists elsewhere around the landfill. Although they are not considered part of a treatment system, these highly organic sediments have effectively prevented the movement of both organics and inorganics off the site to such rates as to not be detected within a few feet from the landfill.

The selected remedy will not pose unacceptable short-term risks. There should be no cross-media impacts since all materials will remain in place.

Attainment of the Applicable or Relevant and Appropriate Requirements

The selected remedy for the pond meets the intent of the applicable or relevant and appropriate Federal and state environmental and public health requirements. One state to-be-considered is included in this discussion. The complete listing of ARARs and TBCs (with the exception of the Delaware Criteria and Guidelines for Creating Waterfowl Impoundments in Regulated Delaware Wetlands) are found in the Feasibility Study Report (May 1988) and Technical Memorandum #1 (May 1988).

The chemical-specific requirements are:

1. 40 CFR 122 (Clean Water Act) - This is a relevant and appropriate requirement which includes the acute and chronic ambient water quality criteria (WQC) for the protection of freshwater aquatic life. These requirements are to be met at the ground water discharge point along the new pond. These requirements would also apply to the draining of the existing pond prior to the filling of the pond.

2. State of Delaware Water Quality Standards for Streams (December 23, 1985)- This is a relevant and appropriate requirement for discharges to surface waters from point sources. These requirements are enforced under the Delaware Regulations Governing the Control of Water Pollution.

3. State of Delaware Regulations Governing the Control of Water Pollution (June 23, 1983)- The applicable requirements concern the discharge of waters to surface water and this would apply to the discharge of waters from the pond. The requirements would have to be met although a permit would not be required as this activity is an integral part of the remedy and is in the immediate area of the landfill and the pond.

The location-specific requirements are:

1. 40 CFR 264.18(b) - Actions within the 100-year floodplain must be designed, constructed, operated, and maintained to avoid washout.

2. Executive Order 11988, Protection of Floodplains (40 CFR 6, Appendix A) - This applicable requirement requires actions to avoid adverse effects, minimize potential harm, and restore and preserve natural and beneficial values.

3. Executive Order 11990, Protection of Wetlands (40 CFR 6, Appendix A) - Measures must be taken to minimize the destruction, loss, or degradation of wetlands.

The action-specific requirements are:

1. State of Delaware Regulations Governing the Construction of Water Wells (January 20, 1987) - These regulations detail the construction and permitting requirements for water well construction within the state.

The to-be-considered (TBCs) are:

1. Delaware Criteria and Guidelines for Creating Waterfowl Impoundments in Regulated Delaware Wetlands - This TBC is not an ARAR as it applies solely to creation of these impoundments in existing wetlands and the new pond is to be constructed in an upland area. The general criteria and construction guidelines are to be used.

Cost-Effectiveness

A cost-effectiveness analysis was not performed as the remedy will be implemented as part of the site remedy by the PRP Group. Should the Group not implement this remedy, the agencies would perform a cost-effective determination as part of a re-evaluation of the alternatives prior to implementing a remedy.

Utilization of Permanent Solutions and Alternative Treatment Technologies

The elimination of the pond and its replacement elsewhere provides a permanent remedy to the potential for bioaccumulation within biota living and feeding in the pond. The creation of wetlands by filling the pond is consistent with the existing landfill remedy. Since the landfill contents will not be removed and since there will be no treatment to preclude the future movement of surface or groundwater into the area of the pond, the draining and filling of the pond is entirely consistent with the landfill remedy. The creation of the new pond will be done to provide at least equal habitat value while the area of the existing pond will also become a wetlands area similar to the wetland areas elsewhere around the periphery of the landfill. The filling of the pond will also further mitigate the direct contact by the biota of concern.

Preference for Treatment as a Principal Element

The statutory preference for treatment as a principal element is not practicable for the pond remedy as discussed previously. These concerns have already been addressed as part of the landfill remedy. There are no human contact or other risks associated with the pond since the leachate seeps are addressed in the landfill remedy.

APPENDIX A: Administrative Record Index

not included.

APPENDIX B: Responsiveness Summary

Wildcat Landfill - Responsiveness Summary

Section 117 of CERCLA, as amended by SARA, requires that a proposed plan be made available for public review. DNREC and EPA have accepted comments on the Proposed Plan beginning on November 4, 1988 and ending on November 28, 1988. A public meeting was held on November 15, 1988, at the DNREC building in the City of Dover, Delaware, Kent County to discuss the contents of the proposed plan for the second operable unit (the pond) of the Wildcat Landfill site. The characteristics of the pond, the alternatives evaluated, and the preferred remedy were discussed and public comments were solicited.

During the meeting one public comment was made regarding the already selected remedy for the landfill. It was suggested that sludge from the Kent County sewage treatment plant be used as a soil amenity for plant growth in the areas on the landfill to be covered.

In response, both DNREC and EPA have agreed to look into the matter of using this sludge as a supplement to the fill and cover requirements on the landfill. However, the various potential county, state, or federal restrictions needed to be examined before a decision could be made. This evaluation is really part of the June 1988 Record of Decision for the landfill and the associated remedial design for the remedies.

No written comments were received on the proposed plan for the second operable unit during the public comment period by either EPA or DNREC.